CS241001 Software Studio Final Project Proposal

專案題目：ZOOM and BOOM

小組名稱：AC

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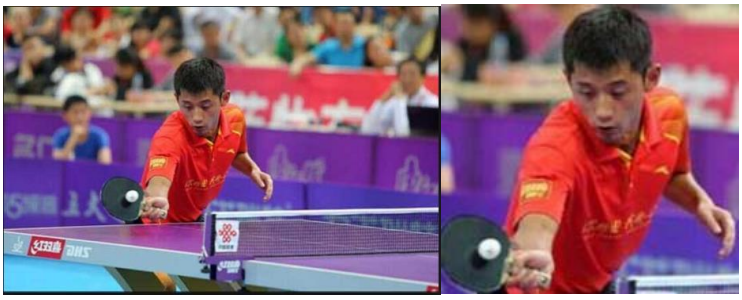
一、概述 (Introduction) (by 張婷雲)

照片，是生命的印記，是剎那的永憶，是回眸一笑的靈動，是萬水千山的壯闊。

(圖一)



然而，並非每張照片都是精心布局的結果，一張照片中往往包含太多不必要、或者觀看者不在意的資訊，例如圖一：包含了觀眾、檔板、廣告，然而看照片的人真正關心的應該是被框出的球員。

透過電腦計算分析照片的亮度和色度加以調整後，可以改善這個問題，卻未必總能精準，如圖二：人眼能輕易判斷出這張照片的主角是右圖的車子，然而電腦卻

(圖二)

未必。由於車子的顏色與背景相近，導致電腦分析上的困難，若要提升精準度，勢必要耗費更大量的運算及時間。

像這類的照片，易造成影像辨識，以及各類影像處理方面的困難，故我們希望能設計一個遊戲，以 Gamification 的理念，誘使玩家幫我們框定出照片中的主角，以期在去除大部分雜訊、縮小分析範圍的情況下，能夠更針對、更精準地處理一張照片。

在閱讀 ***WWW2015*** 的 ***Improving Paid Microtasks through Gamification and. Adaptive Furtherance Incentives***[1]後，我們從 paper 的結論：

"This study demonstrated that even simple furtherance incentivisation methods do work towards getting players to complete more tasks."

"Moreover, we found that among furtherance incentivisation strategies, those that were more social generally fared better than those that were personal."

了解到設計 incentives 的重要性，並發現以讓玩家互動為基礎的 incentives 尤其有效，故我們將在遊戲中設計大量能增進玩家間競爭感的 incentives，希望以此促使玩家為更多張照片框定主角。

二、設計概念 (Design concept) (by Eva Arevalo/艾怡華)

In order to achieve high rates of willing participation from humans, we implement a fun competitive/social game.

1. Visuals

The application comprises a main frames for the image of the Focus Tool. We will refer to each of this component from here on as Image Windows for simplicity. Below the window, there will be a Market ribbon. On the right side, there will be a scoreboard.

2. Focus Tool

The player will be shown an image, he/she is required to frame the object in the picture that he/she believes to be the focus of the picture before in 5 seconds. This window also includes a small timer or maybe some splashes of colors from other players' attacks.

3. Market Ribbon

The market ribbon will be a scrollable element that displays different colors. There will be an image for each color as well as a name and a price. Clicking upon an element will trigger a pop-up dialog where the online players are displayed to choose a target to use on (if applicable). The player can buy the color the same as his/her image in the scoreboard in low price or spend more money buying other colors in order to attack others in secret. The game also provides random color and attack, but it is more expensive and may attack the player himself/herself. There also has a shield to defense from other players' attacks. Clicking upon it can buy and store it.

4. Scoreboard

The scoreboard will display the online players according to their money. A small image of color representing a character will be displayed along with the money. It will be updated in real-time following players' actions. The state of the player himself/herself will be displayed at bottom.

5. Game Mechanics

The game is divided into two parts: framing the focus of the images and interacting with other players by buying colors to attack them.

The players earn money by completing the mission. Then, they can attack another player by buying one of the market elements of the market ribbon. An attack launched against a player will display a small splash in a random position of the other player' s screen for 10 seconds, effectively blocking his visibility of the game. Said splash will slowly fade with time until completely disappearing after the 10 seconds mark is reached. The player who launched the attack will receive a snapshot of screen of the player who is attacked.

6. Incentives for Involvement

In order to increase our application' s appeal, we add some gamification elements, of which some are listed below:

- **Competition**: where the players are positioned in a scoreboard rises the competition factor between players.
- **Probability:** availability of different colors in the market, offering different functionalities at different prices, providing random attack.
- **Time pressure:** time limit in every image.
- **Currency**: let the players buy colors and attack.

三、技術工作/實作計畫 (Technical work/Implementation plan) (by 陳映竹)

我們的遊戲專案將由 Java 和 processing 來實作，技術部分包含：

1. 辨認圖片是否框正確

使用 processing 畫方框，根據使用者畫出的方框的中心位置及長寬是否在一定的誤差範圍內來判斷是否正確。於正確值方面，使用第一人的資料當參考值(判斷為正確)，若第二人與

第一人誤差過大，保留第二人的資料(判斷為正確)，並以第三人的資料做正確值的取捨(去掉差異較大的值，其他取平均)。每多一筆有效資料，加入參考值平均計算。

2. 每隔 5 秒換圖片以及倒數

於官方網站查詢 java 內建之 Timer 的使用方法實作。

3. 攻擊與防禦

使用 processing 的 button 實作方式讓玩家點選顏料與攻擊對象，結合 socket 傳送攻擊資料。被攻擊者的遊戲畫面會產生一塊遮蔽的圖樣，位置用 random 隨機指派。攻擊成功之後，使用和第 2 點相同的方法，讓圖樣顯示 10 秒並隨時間逐漸變透明終至消失。防護罩與金錢(玩家狀態)存於 server 與 client 兩端，分別用於判斷與顯示。

4. 多人連線

仿照 socket lab 的聊天室，在執行之後先跳出輸入名字的 dialog，進入遊戲後 server 隨機指派代表色並 broadcast。綜合以上功能，我們必須自訂適合之 protocol 使 server 端與 client 端確實知道處於何種狀態、必須執行什麼程式。

四、時程預估 (Timeline) (by 范祐恩)

	Week1		Week2		Week3		Week4		Week5	
主題發想										
計畫書撰寫										
使用者介面設計										
系統架構設計										
主程式撰寫&研究										

程式碼整合										
內部測試										
使用者評估										
專題展示(W6)										

五、分工計畫 (Work division) (by 賴思頻)

賴思頻	Proposal: work division and integrating 主遊戲程式撰寫(框圖片) 系統架構設計與整合
張婷雲	Proposal: introduction 及時排行榜程式撰寫 研究可用資源
陳映竹	Proposal: technical work / implementation plan 商店機制程式撰寫 使用者評估
艾怡華	Proposal: design concept 建立輸出入資料庫 使用者介面設計(含美工)
范祐恩	Proposal: timeline 連線機制設計與撰寫 內部測試

六、參考資料 (Reference)

[1] Oluwaseyi Feyisetan, Elena Simperl, Max Van Kleek, and Nigel Shadbolt, “Improving Paid Microtasks through Gamification and. Adaptive Furtherance Incentives (WWW'15)”, May 18–22, 2015.